REMARKS

Application Amendments

Claims 1-3, 5-9, and 11-24 are pending in the present application. Claims 11-24 have been previously withdrawn. No additional claims fee is believed to be due.

Claims 1 and 2 have been amended as shown above to delete hydrogen from the group of possible R_2 substituents. Support for this amendment can be found in the original claims 1 and 2 and at page 2, line 22 to page 3, line 23 of the specification.

It is believed these changes do not involve any introduction of new matter. Consequently, entry of these changes is believed to be in order and is respectfully requested.

Rejections Under 35 USC 102(b) Over Database CALPUS on STN, No. 106:192593 to Molodykh et al.

Claims 1 and 2 are rejected under 35 USC 102(b) as being anticipated by Database CALPUS on STN, No. 106:192593, "Antimicrobial activity of ortho-aminomethylphenols and their derivatives", abstract, Molodykh et al., 1987 ("Molodykh"). The Examiner asserts that Molodykh discloses 1,3-benzenediol derivatives containing a piperidinylmethyl group and, thus, meets the requirements of claims 1, 2, and 4. The Examiner states that the last two lines of claim 1, added in the previous amendment, allow for a C_6 ring saturated or unsaturated and containing an additional hetero atom selected from O, S, and N atoms. Thus, the Examiner concludes that this language includes a piperidine substitutent group. Applicants respectfully traverse the present rejection based on the following comments.

As currently amended, Applicants' claim 1 recites a compound of claimed formula (1) wherein R_1 and R_2 are selected from respective lists of claimed substituents, or R_1 and R_2 together with the nitrogen atom to which they are attached form a *C_3 to C_5* saturated or unsaturated ring *optionally containing* in the ring one or more *additional* hetero atoms selected from O, S, and N, or R_1 and R_2 together with the nitrogen atom to which they are attached form a *C_6* saturated or unsaturated ring *containing* in the ring one or more *additional* hetero atoms selected from O, S, and N. Piperadine is a six-membered saturated hydrocarbon ring containing one nitrogen heteroatom. In Applicants' claim 1, when R_1 and R_2 together form a C_6 saturated or unsaturated ring, that C_6 ring contains one or more heteroatoms selected from O, S, and N *in addition to the nitrogen atom to which*

R_1 and R_2 are attached. Unlike the the "*optionally* containing" language limiting C_3 to C_5 rings, the language limiting C_6 rings is "containing". Stated differently, in Applicants' claim 1, a C_6 ring must contain at least two heteroatoms, one of which is the nitrogen atom to which R_1 and R_2 are attached. Therefore, a piperadine ring substituent, which contains only one heteroatom, is not included in the language of claim 1. As a result, Applicants' claims 1 and 2 are novel over Molodykh.

Rejections Under 35 USC 103(a) Over US Patent No. 4,645,771 to Mills

Claims 1-3, 5, and 6 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 4,645,771 to Mills ("Mills"). The Examiner asserts that Mills teaches benzyl tetrahydropyridine compounds having a structural formula of a formula I, wherein the R2-R6 substituents on ring A are selected from hydrogen, halogen, hydroxy, alkyl or alkoxy radicals, and R1 is a hydrogen or an alkyl radical. The Examiner also asserts that Mills states that R2 and R6 can be hydroxy radicals with the remaining R3-R5 substituents being hydrogen. The Examiner notes, though, that Mills does not teach or exemplify Applicants' claimed compounds. However, the Examiner further asserts that Mills suggests preparation of various derivatives, including specific dihydroxy derivatives of pyridines that include Applicants' claimed compounds. Thus, the Examiner concludes that one of ordinary skill in the art would have been able to prepare Applicants' claimed compounds because Mills teaches tetrahydropyridine derivatives such as dihydroxybenzyl derivatives and Applicants' claims recite that R_1 and R_2 can together form a ring of C_5 atoms such as pyridine. Applicants respectfully traverse the present rejection based on the following comments.

Mills does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness (MPEP 2143.03). As described above, Applicants' claim 1 recites a compound of claimed formula (1) wherein R_1 and R_2 are selected from respective lists of claimed substituents, or R_1 and R_2 together with the nitrogen atom to which they are attached form a *C_3 to C_5* saturated or unsaturated ring *optionally containing* in the ring one or more *additional* hetero atoms selected from O, S, and N, or R_1 and R_2 together with the nitrogen atom to which they are attached form a *C_6* saturated or unsaturated ring *containing* in the ring one or more *additional* hetero atoms selected from O, S, and N. Applicants' claimed compounds can be used as couplers for oxidative hair coloring to provide bright yellow and orange-yellow coloration to hair.

In contrast, Mills discloses tetrahydropyridine derivatives for use as inhibitors of the aggregation of blood platelets for application in the treatment of thrombosis or occlusive vascular disease. While Mills more specifically discloses 1-benzyl-1,2,3,6-tetrahydropyridine derivatives with 2,6-dihydroxy substitution on the benzene ring, Applicants' claim 1 does not include such compounds having pyridine derivative substituents. The Examiner asserts that Applicants' "instant claims recite that R1 and R2 together can form a ring of C5 atoms i.e., pyridine." Office Action at page 3. Although pyridine contains *five* carbon atoms, pyridine is a *six*-membered unsaturated aromatic hydrocarbon ring containing one nitrogen heteroatom. As with piperadine discussed above, in Applicants' claim 1 where R_1 and R_2 together form a C_6 saturated or unsaturated ring, that C_6 ring must contain at least two heteroatoms, one of which is the nitrogen atom to which R_1 and R_2 are attached. Therefore, a pyridine ring substituent, which contains only one heteroatom, is not included in the language of claim 1. As a result, Mills fails to teach or suggest all of the limitations of Applicants' claim 1.

Additionally, there is no motivation to modify the compounds disclosed in Mills to achieve Applicants' compounds of claim 1. Mills only discloses pyridine derivatives having 1-benzyl substituents. The 1-benzyl-1,2,3,6-tetrahydropyridine derivatives of Mills are described as possessing blood platelet aggregation inhibition properties similar to other known benzyl-substituted pyridine deriviatives. Thus, one of ordinary skill in pharmacology and medicinal chemistry would not find motivation in Mills to modify the pyridine structure of the compounds of Mills because Mills teaches that the compounds of Mills possess properties similar to other pyridine derivative compounds. Furthermore, one of ordinary skill in the art of oxidative hair coloring would not look to the non-analogous art of medicinal chemistry for motivation to modify compounds intended for use in oxidative hair coloring.

Accordingly, a *prima facie* case of obviousness has not been established because Mills fails to teach or suggest all of the limitations of Applicants' claim 1 and further fails to provide any motivation to modify the compounds of Mills to achieve Applicants' claimed compounds. Therefore, Applicants' claim 1, as well as claims 2-3 and 5-6 which contain the limitations of claim 1, are novel and nonobvious over Mills.

Rejections Under 35 USC 103(a) Over US Patent No. 4,888,283 to Bertini et al.

Claims 1, 2 and 5-9 are rejected under 35 USC 103(a) as being unpatentable over US Patent No. 4,888,283 to Bertini et al. ("Bertini"). The Examiner asserts that Bertini teaches compounds that act as inhibitors of benzylaminoxidases, which compounds have a general formula I in which R1 and R2 can be hydrogen, hydroxy, and alkoxyl, and R3, R4, and R5 can be hydrogen or alkyl. Thus, the Examiner asserts that Bertini teaches benzene diol compounds. The Examiner further asserts that Bertini suggests that for compounds of formula I containing alkoxyl groups at R1 and R2 the synthesis steps comprise preparing benzaldehyde from benzene, transforming the benzaldehyde to oximes, and reducing the oximes to benzylamino compounds. Thus, the Examiner concludes that it would have been obvious to one of ordinary skill in the art to prepare hydroxyl containing benzene derivatives of formula I because Bertini suggests that preparing compounds by the described process is easily carried out. Applicants respectfully traverse the present rejection based on the following comments.

Bertini does not teach or suggest all of Applicants' claim limitations and, therefore, does not establish a *prima facie* case of obviousness (MPEP 2143.03). As currently amended, Applicants' claim 1 recites a compound of claimed formula (1), wherein, *inter alia*, R_1 is selected from hydrogen atoms, C_1 to C_5 alkyl, C_1 to C_5 mono or dihydroxyalkyl, phenyl or benzyl optionally substituted with a hydroxyl, amino or C_1 to C_3 alkoxy group, and R_2 is selected from all of the same group of substituents *except hydrogen*, or R_1 and R_2 together with the nitrogen atom to which they are attached form certain heterocyclic rings as claimed. Applicants' claimed compounds can be used as couplers for oxidative hair coloring to provide bright yellow and orange-yellow coloration to hair.

Unlike Applicants' claimed compounds, the compounds of formula I of Bertini are intended for use as selective inhibitors of benzylaminoxidases with respect to other aminoxidases. Although the variable substituents of formula I of Bertini can be selected such that any two of the R1-R5 substituents are hydroxyl which thus provide a benzene diol compound, formula I of Bertini requires an *unsubstituted* aminomethyl group at the position on the benzene molecule between the R1 and R2 substituents. Bertini provides no teaching or suggestion for a *substituted* aminomethyl group at this position of the benzene molecule. In formula (1) of Applicants' claim 1 as currently amended, R_2 cannot be hydrogen and, therefore, a substituted aminomethyl group is required at the 2-position

of the benzene-1,3-diol derivative compound. As a result, Bertini fails to teach or suggest all of the limitations of Applicants' claim 1.

Additionally, there is no motivation to modify the compounds disclosed in Bertini to achieve Applicants' compounds of claim 1. Bertini is directed to compounds suitable for causing the selective inhibition of benzylaminoxidase, which is an enzyme that catalyzes the oxidative deamination of various monoamines or polyamines in biological systems. As stated immediately above, formula I of Bertini requires an unsubstituted aminomethyl group at the position on the benzene molecule between the R1 and R2 substituents. Further, all of the example compounds described in Bertini have an unsubstituted aminomethyl group. Moreover, one of skill in the art of oxidative hair coloring would not look to the non-analogous art of enzyme biochemistry for motivation to modify compounds intended for use in oxidative hair coloring.

Accordingly, a *prima facie* case of obviousness has not been established because Bertini fails to teach or suggest all of the limitations of Applicants' claim 1 and further fails to provide any motivation to modify the compounds of Bertini to achieve Applicants' claimed compounds. Therefore, Applicants' claim 1, as well as claims 2 and 5-9 which contain the limitations of claim 1, are novel and nonobvious over Bertini.

CONCLUSION

In light of the amendments and remarks presented herein, it is requested that the Examiner reconsider and withdraw the present rejections. Early and favorable action in the case is respectfully requested.

Applicant has made an earnest effort to place their application in proper form and to distinguish the invention as now claimed from the applied references. In view of the foregoing, Applicant respectfully requests reconsideration of this application and allowance of Claims 1-24.

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